microBYTES
Published bi-monthly by Bits & Bytes Ltd.
THE EXTRA BIT FOR MICRO USERS
Issue 2
March

Virus – or cancer?

by John King

As a phenomenon of the computer industry it's been around for a long time, starting off as the so-called time-bomb, the bug left lurking in the mainframe system by a disgruntled programmer to disrupt files (at least) when he left.

More recently the PC and microcomputer world has been made aware of the Trojan Horse, the ostensibly-innocent Public Domain utility that actually does nasty things inside the machine. An example is EGABTR, which claims to do something like "improve your EGA display" but in fact deletes everything in sight and displays "Arf! Arf! Got you!"

Or a bit more sinister, for those who have security in mind, is STRIPES.EXE, which draws an American flag but meanwhile is busy copying your RBBS-PC.DEF to another file so that somebody can log in later, download STRIPES.BQS and steal all your passwords.

Apart from the attractions of displaying some nuclear power's flag on your monitor, things have been getting worse lately, and what is now known as the computer virus has been making headlines in the newspapers. In some ways it's similar to the Trojan Horse in that it lurks inside a bit of software, ready to leap out at the innocent micro user, but in other ways it's considerably worse.

The virus has been contrived by a more devious type of programmer, aptly described as having an "LSD-in-the-reservoir mentality", and has the capability of spreading, not just through all the various pieces that make up a computer installation, but also throughout the PC (and even mainframe) community. In fact it shows the potential, even at this early stage, of insinuating itself so thoroughly inside all computer equipment and rendering it utterly useless that it could change our whole way of thinking.

Certainly it might be able to be cut out of one part, but unless every single trace is exorcised it can lurk in there and disrupt any hardware and software at any later date. "Cancerous" is an uncomfortably close description.

Similar problems

One example came through BITNET from the US towards the end of last year: "Some of our student consultants discovered a virus program that's been spreading rapidly throughout Lehigh University [and has] the chance of spreading much farther than just our university. We have no idea where the virus started, but some users have said that other universities have recently had similar problems.

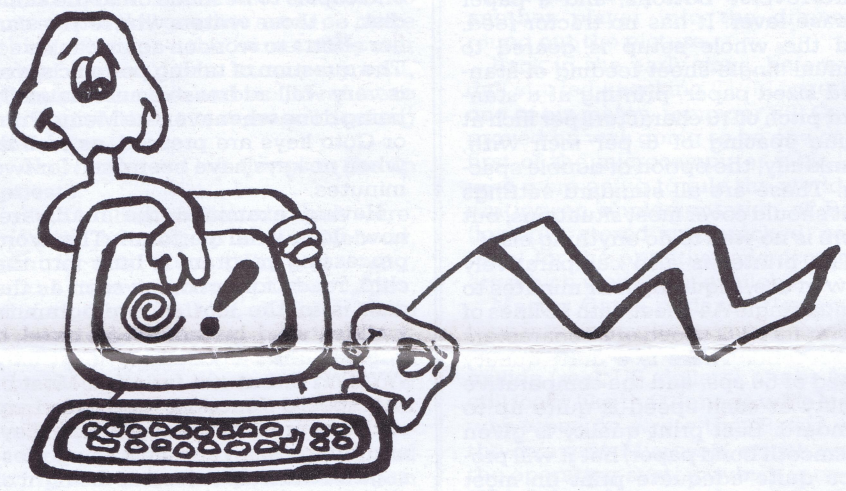
"The virus itself is contained within the stack space of COMMAND.COM. When a PC is booted from an infected disk, all a user need do to spread the virus is to access another disk via Type, Copy, Dir etc. If the other disk contains COMMAND.COM, the virus code is copied across.

"Then a counter is incremented on the parent. When this reaches a value of 4, any and every disk in the PC is erased thoroughly. The boot tracks are nulled, as are the FATs (file allocation tables), etc. All Norton's horses couldn't put it back together again. This affects both floppy and hard disks. Meanwhile, the four children that were created go on to tell four friends, and then they tell four friends, and so on, and so on.

"Detection: while this virus appears to be very well written, the author did leave behind a couple of footprints. First, the write date of the COMMAND.COM changes. Second, if there's a write protect tabon an uninfected disk, you will get a WRITE PROTECT ERROR, so boot up from a suspected virused disk and access a write protected disk – if an error comes up, then you're sure. Note that the length of COMMAND.COM does not get altered."

Scary? It should be. One immediate, although not the complete, answer is similar to those AIDS ads: "Exercise

continued on 4



Disk shortage price increase?

Word is there may be a price hike in 3.5-inch disks and a shortage for some months to come. Apparently the success of the Apple Mac, Atari ST and Commodore Amiga in the US, as well as the new IBM PS/2 series, has taken manufacturers by surprise.

Experience in the past here is that where there's a shortage from the US and Europe, the time lag in a return to normal conditions will be extended even further.

Phil Curtis of Hanimex says there is a shortage of Fuji disks, brought about by the large increase in numbers of drivers with 3.5-inch now being offered as an option on many machines.

"Fuji has a capacity problem. It started with the high-density disks and has expanded out to all 3.5-inch. We're on allocation at the moment, but they're expanding production and expect to be filling all orders by June. Prices aren't moving, either up or down."

However, Verbatim's general manager Derek Dingle says he expects prices here to come down, if anything. 3.5-inch disk prices have been falling here and in spite of a run on them recently he predicts their supplies, from Japan, will be stable. "We've been losing some tenders recently due to very low prices. It is getting similar to the 5.25-inch situation."

Chips in fish?

Identification of prized animals has now joined the ranks of the microchip industry. A Colorado company is set to launch a programmable glass-encased microchip, no bigger than a grain of rice, which can be implanted by syringe in an animal's muscle for later identification if the beast is lost or stolen.

Likely markets for the chip, which contains no power source and lasts for up to 30 years, are domestic pets, trained animals and farm stock, particularly thoroughbreds. No mention has yet been made of the aquatic market, however.

Not yet from Commodore

Still rumoured to appear from Commodore is a new model of the venerable 64, with built-in 3.5-inch disk drive and looking more like the Amiga 500. Official Commodore sources say they have "not yet made plans to offer a new 64", which other industry sources believe is a good indication that it may well come shortly.

A laptop is also expected, described by Commodore in Europe as being "powerful and probably not based on the 8088/8086 chip", but looking more certain is an MS-DOS emulation for the Amiga.

Apple taking big bites

Apple Computer chairman John Sculley told the recent shareholders' meeting that the company was on its way "to becoming the $5 billion company that we hope to be by 1990." Such optimism was stirred by a projected 30 per cent growth in revenue this year, with the promise that Apple will be introducing a range of products to link Macintoshes with other computers.

Also indicated was a smaller, lower-priced Mac II, although no word has been said officially about the laptop Macintosh reportedly seen in prototype form with a new technology screen.

Educational software

Encouraging news for Archimedes fans from Acorn, who is about to invest 250,000 pounds ($NZ665,000) in a move to ensure further educational software development for the Archimedes.

The money will go to Edsoft, the UK-based company which specialises in educational software for the RISC-based machine.

Atari???

Still no news on the Atari front here in New Zealand (*MicroBYTES*, December), but as a matter of interst to those hanging in there the Megadrive internal hard disk drive has been announced for the Mega ST range by the UK distributors of drives for the ST.

There's also talk of a new range of add-ons coming up this year and the drives will come in 20, 30 and 40Mb versions. The price starts at $NZ1567 for the 20Mb drive.

How about it, Apple?

Apple Computers in the UK has announced an upgrade to the Mac Plus for 128kb and 512kb owners in a deal which comes out to half the price of a normal upgrade there. The upgrade is bundled with HyperCard, MultiFinder and version 5.0 operating system.

Apple says the upgrade offer, available to the end of August, was designed to enable early Mac users to develop their systems and take advantage of new developments. Perhaps we can look forward to something similar happening here?

Modem card

A PC modem card is about to be retailed by Amstrad in the UK at $NZ530 and operates at speeds between 300 and 2400 bode.

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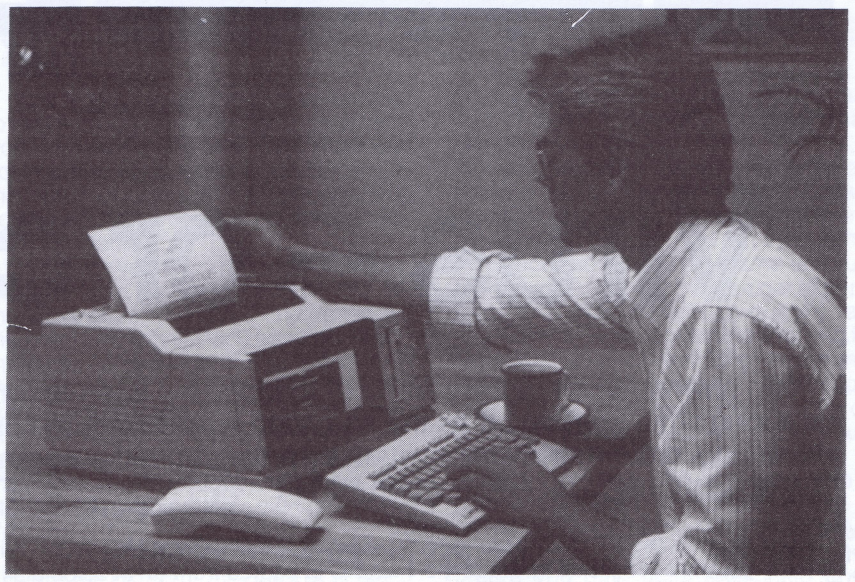
Word processing for the computerphobe?

by David Cass

It looks like a microcomputer, with monitor, built-in disk drive and printer, is obviously microprocessor based, but will do only word processing. No spreadsheets, no databases, no games, just a word processor, pure and simple. It cannot in any way be interfaced to other computer equipment or any other printer.



The obvious question is: why, if you have all the ingredients of a micro, don't you sell it as one?

Answering this question brings out some interesting marketing angles, which Commodore and the designers of the Videowriter, Magnavox, have obviously explored. They, and other firms such as Smith-Corona with its PWP (Personal Word Processor) introduced in 1985 in the US, and Amstrad, slightly more up-market with the PCW 8256 and its derivatives, have targeted a market of inexperienced or even reluctant computer users, who want something more than a typewriter, see word processing as the answer, but also see the computer as the problem!

The Videowriter answer is to disguise the computer heritage and make the word processing and printer controls as simple and uncomputerlike as possible.

Just who comprises this market? Probably the small business with infrequent and unsophisticated correspondence needs, or the advanced school and university student with essays and reports to prepare. In short, the existing typewriter user, whom Commodore doesn't see as needing a computer but a better solution than a typewriter. Viewed in this way, as word processing for the computerphobe, the marketing rationale becomes clear.

Simplified word processing

More than many pieces of computing equipment, this one is designed for a specific, less demanding user, makes compromises to help that user, but loses some performance points in the process. To review this machine fairly, one has to examine it from this viewpoint, as an attempt to simplify the word processing and printing functions while still maintaining adequate performance.

First impressions as one unpacks the Videowriter and its keyboard from the matt black carry case (54 by 24 by 48 cm, and weighing 13kg), are of a tidy and compact unit, neatly styled. All controls are easily reached from either the front panel (power on/off, disk insert/eject, and screen brightness) or the top of the back part of the systems unit, where the controls for the built-in thermal transfer printer are located. On setting up, the only cable to attach is the keyboard lead, a simple latched push fitting, that can be inserted only the one correct way.

The systems unit, comprising screen, processor and printer, has a small footprint. Both keyboard and systems unit have tilt legs to adjust the angles and allow air to reach the undersides for cooling. The screen itself, a restful amber with a good range of brightness control, is rather small, with text or messages displayed within an 18.5 by 7 cm area, but the displayed text is crisp and clear, and I found no problems in working for extended periods, taking short rests as w/p operators would normally do.

The actual area within which text is displayed is even smaller, at 14 by 6.5 cm with a diagonal of 15 cm, and within this area 18 lines of 80-column text are displayed, with the remaining screen space used as a Help screen reserved for operator instruction messages. It's a very small screen to work with, but the only size-related problem that I met was difficulty in telling commas from full stops.

Satisfying feel

The keyboard unit is compact, and comfortably sized. There is no separate numeric keypad, but 16 function keys, clearly labelled, and a cursor diamond fit round the top and sides of the keyboard. The keys have a satisfying feel and a trained typist should have no problems adapting to it, but in some situations, such as when inserting text into a long document, I found that the keyboard buffer could not keep up with my typing, and at about 20 characters behind it gave up the attempt and typed garbage on the screen. I found too that the movement of the cursor was slower than on my usual program, and in some situations, for example when delete, back space, or space keys were held down, the cursor would overrun the desired stop point. Holding down the Space bar with a cursor key gives a fast-track cursor option, however.

The main system unit houses a thermal transfer printer, built into the back of the unit, with controls and paper feed easily reached from the top. Paper feed is by friction roller, with automatic paper advance and fine control of paper position by forward/reverse buttons, and a paper release lever. It has no tractor feed, and the whole setup is geared to manual single-sheet feeding of standard sized paper, printing at a standard pitch of 10 characters per inch at a line spacing of 6 per inch with, thankfully, the option of double spacing. These are all standard settings that should cover most situations, but there is no way to do anything else!

The printer is also comparatively slow in use, requiring four minutes to print a single A4 sheet with 52 lines of text at its NLQ speed of 25 characters per second. There is a draft quality speed of 50 cps, and the comparative quality at each speed is quite up to standard. Best print quality is given on smooth bond paper, but it will produce quite adequate print on most surfaces.

I felt the printer was not as simple to use as it should be. The paper feed was inconsistent in its pickup and left pages being printed at various heights, and it was very sensitive to paper weight, not feeding airmail letter paper although aerogrammes were handled. Heavier paper also gave problems, sometimes but not always feeding OK, but these tiresome problems could have been unique to this sample.

The Videowriter is set up to work with two page lengths only: letter at 52 lines per page and legal at 70 lines. Nowhere in the manual or on-screen instructions does it say what lengths they represent in inches or centimetres, so that attempts to depart from these norms to avoid wasteful top and bottom margins can lead to costly trial and eerror in terms of wasted paper and print ribbon, when combined with the erratic paper feed.

High running costs

Noise levels in operation are not bad to live with, the printer being less obtrusive than some I have heard. The final factor to consider when evaluating printer performance is that of running costs, and here the thermal transfer method shows its typical drawback, with a ribbon life of up to 75,000 characters. That may sound a lot, but with average writing it amounts to about 12,000 words, or at the most 40 pages. The replacement cost of the ribbon is high, and it also runs out without warning, so a spare is advisable.

On the credit side, ribbon change is very easy, and the machine can be used without a ribbon on thermal transfer paper. Transparencies can also be printed, using the ribbon and an opaque backing sheet.

Disk size is 3.5-inch, and the disk supplied has a spelling checker of 50,000 words. Storage space is not listed anywhere in terms of kb, but in practice should be adequate for most low-volume users, allowing a total of up to 75 pages in up to 54 separate files. Longer files of up to 150 pages can be stored on a disk without the dictionary, but periodic clearouts of dead files would seem a particularly good idea with this system.

Security backup files cannot be made on another disk, although the split-screen facility does allow second copies to be made on to the same disk, so those writers who retrive earlier efforts to work on again can do so. The question of taking periodic saves is very well addressed, automatically being done whenever the Menu, Print or Goto keys are pressed, as well as when no keys have been used for two minutes.

Having examined the hardware, how does it all perform? The word processing program is built into the chip, ready for action as soon as the disk is in the slot. The program is well-featured, but not full-featured; it offers all the basics and is not strictly WYSIWYG, but not far off it. Most of the special functions are called up with one press of the appropriate key, and bring up an accompanying message on the Help screen at the right of the display, with on-screen prompts to work through the various functions. The system works well in practice, and needs to, as the manual does not help much at this stage.

A useful feature, and probably much needed for the inexperienced user for whom the system is designed, is the Undo key, which in some cases will stop an erroneous command – in some cases, but not all! Deletion of text can be done with only one key press, without a confirmatory check, but a safety feature should have been built into the program, designed for novices as it is.

A feature that I found useful, and would like to have in my regular system, now that I've tried it, is the split-screen facility. It splits the screen display into two windows of eight lines each, allowing work on two documents at once, with single key transfer from one to another and the ability to copy and move text from one to another.

The spell check system is another selling point. A passive system, it relies on the writer having the suspicion of a spelling mistake and calling up the checker to check the word in question, so it cannot be used to proofread a document for typos and bad spelling. American spellings are favoured, so those who believe in the Queen's English will have to build their own custom dictionary. Up to 1000 words can be added. Really bad spellers can use the Guess at Spelling option, where the dictionary will seek a closest match to their attempts.

The verdict

The Videowriter does its job, of being an easy-to-use word processor for the novice, quite well. It has limitations, notably in the printing department, where the speed and ease of use on anything but short standard-sized documents are not as good as could be hoped for by any but an undemanding user. If you can live with these, and the running costs for ribbon and good quality paper, the word processing side will probably suffice.

There is little competition in this price range although with astute buying you could possibly assemble an 8-bit micro system, with a word processing program, 80-column display and disk drive, and a separate NLQ dot matrix printer for a few dollars more. For a few hundred dollars more, you could be into a 16-bit system on the same basis, or the Amstrad PCW 8256 or derivatives.

Any of these solutions would be more versatile, able to run spreadsheets, databases, games and other software, and able to print faster in many more styles and spacings, but they would be more difficult for the first-time or casual user to learn and use, involving several manuals to read and computer operating systems to learn. A further alternative solution for some users could be a sophisticated electronic typewriter, offering better print quality, slower speed, and the ability to do carbons, but without the word processing display and more advanced functions.

The Videowriter has an interesting combination of features and good qualities, and some drawbacks. It is unlikely to appeal to the computer sophisticate, or a volume user, but others should evaluate it carefully against their likely intended usage. It may well find its niche in the marketplace. ■

Word Processor Summary

Name:	Videowriter, by Magnavox
Distributor:	Commodore Computer (NZ) Ltd
Microprocessor:	not specified
ROM/RAM:	not specified
I/O:	no expansion ports
Display:	18 by 80 column text, amber mono, no graphics
Keyboard:	QWERTY, 68 key incl 15 function keys, cursor diamond
Printer:	inbuilt thermal transfer type, 25 cps NLQ, 50 cps draft
Mass storage:	3.5 inch disk drive, capacity unspecified (see text)
Operating system:	not specified
Software:	3.5 inch disc contains spell check
Dimensions:	36 cm W by 36cm D by 22cm H
Weight:	in carry case, 13 kg approx
Price:	$1595 inc GST
Options:	new ribbon $18.50
	dictionary disk with spellcheck $16.95

Who's afraid of the big bad computer?

by Tim Hartnell

In some ways, it was much easier in the good old days. There was a data-processing department, with a dp manager. When you had a problem which could benefit from computerisation, you called in the dp manager, genuflected towards his arcane wisdom, explained the problem, and endured the serious looks, the claims of 'This will be quite difficult' and then – after waiting a long, long time – you got some sort of computer output, which might well have been approximately useful.

Even though it was a hassle dealing with the high priesthood, at least it meant you didn't have to get your hands dirty by actually interacting with a computer.

But although this allowed you to remain blissfully ignorant of the way computers worked, it also cut you off from the source of power. Upper management was divorced from its most powerful tool, and the gates to the computer temple were closely guarded by the dp manager and his dp staff.

This is not the good old days. Computer power which could eat a late 1960s computer as an entrée for breakfast is now available for less than $2000. The power can now be there, at your fingertips.

But, just as life wasn't meant to be easy, it seems that the high priests who locked you out of the dp temple got in on the act to ensure that using microcomputers was also not meant to be easy.

An empty box

A computer is really an empty box, if you ignore all the little physical, electronic bits. The real heart of the computer, the thing that fills up the box is the software, the programs. From games, through electronic spreadsheet calculators to word processors, computers become capable of action only through software.

But software needs humans to drive it. The user interface is the face the software presents to the world.

Gary Kildall is one of the Californian bright boys who contributed to the rise of microcomputers which threatens to engulf us all like a tide. Back in the dp temple days of 1975, when Kildall was working for the chip-maker Intel Corporation, he developed a program he called CP/M (Control Program for Microcomputers). Before CP/M was developed, the majority of microcomputers were operated by flip-switches on a front panel. Most output was in the form of flashing lights.

As you can imagine, this meant that very few microcomputers ever found themselves employed on any but the most trivial of tasks.

Kildall developed CP/M to control disks, to accept input from a keyboard, and to send output to a video monitor. As he had developed CP/M on Intel time, and with Intel equipment, Gary offered the product to the company. Intel was amused. Microcomputers, they said, were just a fad, as IBM had recently announced. "Intel is not in the toy business," he was told. "Go away and play with your program yourself."

Intel was very, very shortsighted. CP/M gave microcomputers the ability to store programs on disk, and as it quickly became a standard operating sytem, programmers realised it had become worthwhile to write major software. There was now a market for such programs. CP/M became the standard by default, as it was the only game in town. So Gary became very, very rich.

Kildall made computers running under CP/M inform the operator they were ready to swing into action by printing the following enigmatic message on the screen:

A>

The first sight of this prompt is likely to send a shiver of apprehension into your heart. "If that's how it begins," goes the unspoken fear, "where does it end up? I could never cope!"

Most users of microcomputers over the past ten years or so have had to learn to live with A>. For a long time we had no choice.

Then programmers at Xerox's Palo Alto Research Institute thought up the idea of using icons – little pictures – on the screen to replace such esoterica as A>. They teamed this up with a mouse, an object about the size of a 15-pack of cigarettes, linked by umbilical cord to the computer, which allowed you to move a pointer around the screen to indicate which program or file you wanted to work on. To run a program, you moved the pointer onto the icon of the program, and pressed the button on the mouse.

And if you wanted to erase a file or program, you used the mouse to 'drag' its icon into the rubbish bin. In the good old A> days, the only way you could erase a file was to type in something like DELETE file, KILL file, or ERASE file. I, and zillions of others, could never remember whether to use delete, kill or erase, and – to make things worse – the same computer could expect delete at one moment, then kill the next, and would refuse to recognise the one it wasn't looking for.

No wonder we left things to the dp priests.

And brilliant as Xerox's ideas were, nobody wanted to know. Nobody, that is, until Steve ("I'm still young, and I still want to contribute") Jobs, the dumber half of the pair who started Apple in a legendary Californian garage, snooped around, saw the mouses and icons, and promptly converted the idea into a computer called the Lisa.

Nobody wanted to get acquainted with Lisa. She came into the ballroom a price tag of $10,000, but no-one rushed to write their names on her dance card.

Then Lisa went in for a little sex-change therapy, and re-emerged as Mac, the Macintosh. It was a third, or less, of the price, and under the brave slogan of 'The computer for the rest of us', the Mac sailed forth to save the world from being drowned in IBM PCs.

It has just about worked.

Although the corporate sector is still a little afraid of Mac, owing to its initial T-shirt/LA sunshine/jeans image, this Apple computer is gradually making inroads into 'real business' offices.

However, when the true history of microcomputers is written, it could well be that the Mac's main contribution will have been to awaken the world to the desirability of icons and mice. Because, once you've become addicted to the little pictures and the little beastie on its string, it is very, very hard to go home and embrace A> and its friends.

Those whose computers played host to A> recognised the alienation that was occuring, and to stop the market tumbling head over heels in love with the output of the orchard, decided it would need to have its own zoo of meece and icons.

Re-enter, stage left, Gary Kildall. Since he had foisted A> on the world, who better to help hasten its departure? Gary's company, Digital Research, then wrote GEM, a Mac-like front end to hide A>. He almost did his job too well. Apple went into knee-jerk 'sue the bastards' mode, and said that on a dark night, with the light behind it, from 40 paces, a computer running GEM might be mistaken for a Macintosh. "It's our idea," screamed Apple (apparently forgetting Xerox), "and no other bugger is going to have it!"

So Gary's mob patiently modified GEM, so it still looked and worked like a Mac front-end but didn't upset Apple's laywers.

We'll take a close look at GEM a little later, but I need to introduce another player into the drama to round out the picture.

Back in the early days, before Kildall started knocking CP/M together, one of his mates, teenager Bill Gates, proved he was going to be one of the first of the microcomputer whiz kids who were going to rule the world, by writing an implementation of Basic (lovingly stored on punched paper tape) for the primitive microcomputers which were then available.

Master Gates parlayed that paper tape into an empire, which makes him now personally worth around $100 million (real, US, dollars). Gates (who still looks like the tennage whiz kid he was when he wrote that Basic) runs the company Microsoft, which wrote the operating system which is on the IBM PC and on nearly every other important microcomputer in the world.

For all his genius, Gates was unable to escape the dreaded idea which Kildall had invented, so even today a naked IBM PC/AT/XT/clone/compatible greets you with A>.

So when Kildall started elbowing in on the icon action with GEM, Gates thought he should preserve his millions by producing his own idea. And thus the Microsoft Mouse, and Windows, were born.

A 'window' in computer parlance is a rectangle which contains some specific information. Windows can be placed behind – or in front of – other windows, and they can be made to shrink or grow so you can set up your screen exactly as you want it to be. The whole point of all this is that GEM and Windows mean that you can now use an IBM-compatible computer almost as if it was a Mac, without ever having to shake hands with A>.

The Mouse

It is not essential to have a mouse to work icon-based software, but it sure helps. Rather than moving the pointer around the screen using the keys with arrows on them, the mouse makes it easy to indicate which window you want to use and which file you want to access or delete.

There are several mice available on the market. It makes sense to buy one which either has a 'nationally recognised brand name' (like Microsoft) or one which is claimed to be compatible with it, as not all software which accepts mice will work with all mice (!).

The Microsoft Mouse kit comes with a hefty 300-plus page manual, the mouse itself, a little board of electronics to stick inside your computer, and a disk containing the software which your computer needs to run the mouse. Even a total screwdriver-illiterate like myself managed to get the mouse working within 30 minutes or so (the main problem is getting the top off the PC, rather than in fitting the mouse board, and setting up the software), and it has happily trundled around my desk ever since. The mouse software includes a track called MOUSE.COM which you copy onto the same disk as the program you're using with the mouse, and that's all there is to it.

As well, you get the PC Paintbrush program (which looks more like MacPaint than MacPaint does), and other goodies including a primitive mouse-based word processor (which bears the hideous name Multi-Tool Notepad, perhaps indicating that, in American, the word 'tool' does not carry at least one of its ancillary Australian meanings), and a kind of 'piano' which lets you play God Save the Sovereign Person with one finger.

We'll assume that, if you want to use icons, you'll most probably get a mouse. It is pretty pointless if you don't. In the balance of this article, I'll look at the two main icon-interfaces you can choose from, Windows and GEM.

Windows comes with the operating system, a word-processor and a paint program, while The GEM Collection, which is the way you buy the initial GEM package, includes the GEM operating system (The Desktop), GEM Paint and GEM Write.

Note that both these operating environments consume significant amounts of memory, and they can be very, very slow on a standard PC. The speed degradation is less imortant for ATs and XTs.

Let's look at them one by one. ■

Continued next issue

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BBSing in New Zealand

by Paul White

As time passes it seems that a large number of people are muttering about modems and computers, and why aren't there any BBSs around, and if there are, they usually know of only one or two. This is to tell you there's a healthy population of boards and users, and they've been there for some time. Have a quick look at the list now just to convince yourself, especially if you live in Auckland or Wellington.

For over a year now I've run a board known as ABUG, but at their base levels, boards are generally very similar, so if you've never accessed a board before then this is what you may face. First off I'll assume you own a computer, modem and know how to use it; if not, I think you'll find it has been covered before in previous issues.

Public Domain communications programs are available for most computers from User Groups, as well as a wide variety of commercial ones, so it pays to look around. Load your program set for 300 baud, 8 bits, no parity, 1 stop bit (this is the default standard for BBSs), dial the number, then when it answers and you hear its tone, press "300 originate", or the "online" button and wait. Sometimes a <CR> is needed to get a result.

From here the board will be your guide, so just do as it says. What happens now is that generally a title page will appear and you'll be asked to do one of two things: a prompt to enter your name, or to just press <Return> if you are a new user. Either way the computer will know you are a new user and as such will usually have restricted command use.

If asked for your name – give it! It won't be published in the daily papers, and some systems won't allow access without a name (e.g. Chat, C/B, Bullet, Fido, RUBoard). You may also be asked to fill out a few details as a new user, and please do so truthfully. Hopefully you'll now be introduced further, perhaps a set of commands, how to access the main menu, how to join the board. If not, then try typing HELP or H or ? followed by <CR> which should give you a list of what is available for you to use.

Free or otherwise

After your introduction to a board you usually wish to become a full user. Some BBSs are free, some are not. Those which charge usually do so to pay for their phone line and provide a 24hr service in return, and a subscription of $30 is about the norm for a year. Whatever happens, you must usually send the Sysop a message about yourself, and the BBS will often invite you, as a guest, to do so.

Some boards will have a special command, for example <J>oin, which will step through a series of prompts asking for your name, a password, computer type and a contact phone number, while others such as ABUG will tell you to use the MAIL command and send those details in a message. It's a good idea to always give those details, asked for or not, when you wish to become a full user. Remember, Sysops will *not* ring you up, or chase around to get details from you. If the board charges you may find a downloadable application form, or simply just an address to which you should send your money, plus the details of who you are, a phone number, a password and so on. Once again, *please* send all the details asked for!

From here I'm going to look at the reasons for why a BBS exists, namely private and public messaging systems – communication! Messages may be sent either publicly or privately – Public Forums, such as on ABUG or Access, are always public, and on these BBSs messages once entered cannot be deleted. On other systems, messages are sent either with or without "protection". If you send a message, the BBS will often ask if the message is to be Public or Private, and you then choose. Don't be led into thinking of a BBS as a crude database in these respects, and in fact they're usually far more friendly and easier to use.

Private mail is e-mail, that is when you send a message to another person only that person can read it. Common commands are MAIL or <L>eave a message, and you'll then be asked to enter the name of the person you wish to send to, then a subject and finally the message. You'll also be told how to end your message and the maximum number of characters per line. Most boards will word-wrap, just like a word processor, when you reach the end of a line, and all provide editing facilities for you to correct mistakes.

Think up a distinctive way to sign off your messages, as it gives you an electronic 'personality' which others will appreciate. Once a message is entered you may <S>end it, <C>ontinue to write more ot it, <A>bort it altogether, <L>ist it to check all is correct and finally <E>dit it if necessary.

The other side of e-mail is what you receive. Here you are told who it's from, the time and date, and a subject. After the message you are prompted to go on to the <N>ext item, or <R>eply to this one, <Abort reading mail, or <D>elete this item. Deleting your mail is quite important. If you don't do it, the Sysop will usually have a way to delete old messages, but it helps if users do kill off their old and unwanted items. On some systems you can also scan items and select which ones you wish to read.

Public messages give you an idea of what's going on in the BBS and the type of people who use it, and are also the way to make contact with perfect strangers – who may become electronic friends! – and are divided into categories which can be either read separately or together, such as BBC, C64, Insults, Hackers, IBM, General etc. This is just to help you find what most interests you. The command Read will allow you to look at any Public Messages on most BBSs, and other commands can be Forum or Leave. Remember, anything you say in this part of the board can be read by anyone and in some cases you will not be given the option to delete it.

Entering the appropriate command will give you a list of what messages are available, and either a prompt to start reading or a series of options to Read, Send a message, Choose another topic or Exit. Reading a message will tell you who sent it, the date, who it is for, and the subject. After each message you'll then be prompted to <A>bort, <R>eply, or <N>ext item, or some equivalent response.

You may also be able to <R>everse read, or <S>kip and various other options, and usually there'll be a <H>elp or ? to explain what they all mean. Private forums are slightly different: they restrict who has access and usually contain a private discussion between a group of people with access being controlled by a Sigop (special interest group operator). If you want to have access you must send a message to the Sigop of the forum and ask for it.

Boards also provide other features. Software Up and Downloading. Online games, including interactive D&D, Trivia, and adventures. Lists of other BBSs around NZ or elsewhere – usually Ascii files of interest to all. User Group News (if the board is run by a club, this is a good way for members to find out what's on). Statistics (just to see who's been sending the most messages and such), a User List and even User Logs.

These are just some features, and boards have many others as well. If a board has a CHAT mode, it can be the best feature of the board for it allows you to interactively chat with the Sysop. Some of the larger boards don't have this, but if it's there, please give it a go, you'll enjoy it!

Eventually after a number of visits to boards you'll learn things about its users and their personalities, or rather their online ones, and you yourself will become part of that community (remember boards are independent of age, sex, handicaps or whatever exists in real life).

Are you female? If so, then where are you? Boards are male dominated, with only about 10 women throughout Auckland using the boards, and only four of those are regular users. So why not push your brother/husband/boyfriend off and give it a go?

Getting around a BBS can be quicker if you remember the following: Cntrl-S pauses text, Cntrl-Q continues text, Cntrl-X or K or P will abort whatever you're reading. These will work anywhere, at anytime on boards which support them. At prompts try <Y>es, <N>o or <Q>uit if no options are given. Sysops try to make life easy for users, so full and detailed instructions are given at every step of the way.

If you don't know what to do next a <CR> on an empty line will often give more details. To end a message try "!", "." or just <CR> on an empty line – instructions are given on every system, so just follow the directions given. If you've entered a part line and wish to delete it all, try Cntrl-U. If you can't remember commands, then buffer a copy of them to your printer so you can have them on hand. Once you're a user, *don't* give your password to anybody who asks for it. YOU are responsible for what happens under your name!

Grouping commands will often work. Always look for an Info section on the board, which will usually contain information about the board and what all the commands do and their uses. Remember you can't harm the system, and remember, computers are patient – no need to do anything in a hurry, no need to worry about not being able to type very well, just do your best.

Bulletin Boards are fun. There are quite a few around now, and there are lots of people with modems out there. You're bound to come across someone with similar interests, and discussions aren't just on computers; in fact computing isn't a popular choice. The people are friendly in general and always willing to help with any problems you have.

There must be hundreds of unused modems out there in Auckalnd alone, and it would be an expensive habit to use them merely to access Videotex or overseas databases. Try your local small and friendly BBS – send a "hello" message to the Sysop – a public message if you like. You never know what reaction you might get.

And if you haven't yet thought about buying a modem, then think again.

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continued from 1

safe computing – always wear a write protect tab."

Promiscuous lifestyle

Or as one software maker said, "Those who continue to have a promiscuous disk lifestyle will be at risk."

An obvious source of possible viruses is Public Domain software, whose distributors are well aware of the problem. "It's now become necessary to check all new software," says Bruce Armitage of Select Software, Nelson. "We are using Chk4bomb and so far have found only one, which rewrote one sector on a hard disk.

"A dBase III compatible database had a virus at the beginning of 1988, and we had to replace 43 copies in New Zealand, while there were 600-700 in the UK. Since the beginning of this year we've stopped downloading from bulletin boards as a matter of policy. We've identified some recently, one of them a pinball game which erased the directory on the hard disk," he points out.

"It can be very serious, especially if it writes to COMMAND.COM."

Just who is responsible for the computer virus, and how likely is it to turn up in your own PC or micro?

"It's a certain type of person who gets a sadistic thrill out of it," is the opinion of Dale Farnsworth of Software Plus. "Eighteen months ago there was a scare of hacking with modems, but hackers are more into programming or bulletin boards. They're writing their own games, and putting their talents to good use.

"This is bringing into the foreground the fact that pirating is on the way out. The virus comes in with imported software and is spread by copying. The sensible companies including Lotus are dropping copy protection, with the registered user's name indelibly printed on the software."

But the name of Lotus is associated with aproblem which, although not strictly a virus, has nevertheless caused some headaches among users. Brought into action by a sophisticated switch activated by copying, Superlock has a hidden directory invisible to DOS and stops using DOS backups and restores. The program will no longer write, and although files appear in the FAT, no data has been written.

In a similar vein is an overseas accounting package sold locally which, once the security lock has been changed or tampered with, wipes all data after the program has been run 100 times. It also refuses to accept backups.

Viruses are so far through to be rare in the MS-DOS world, but are publicly acknowledged to have hit the Amiga, where one strain can attach itself to the memory and affect any disk put in the machine after that.

Not discouraging it

"It's fairly common," admits one Auckland source who would rather not be named but who sells an Amiga virus killer. "It's a form of copyright protection done by somebody in Switzerland who cracked the code. This virus is getting to be a big thing, and I suspect the software companies aren't discouraging it. They haven't spoken out against it, anyway."

"It's a curly thing," says Brian Eardley-Wilmot of Brimaur Computer Services. "I believe a little while ago some lesser lights in software publishing companies were putting them in.

"People writing viruses are pretty irresponsible at the very least, and at the worst they're criminal. I can't think of any justification for it. A virus is something done by an individual and will eventually screw the whole thing up."

The industry was against the idea of publicising Trojan Horses in case it gave ideas to those who might perpetrate similar devices, but it's now generally thought the virus writer is far brighter than a hacker and would have thought up such ideas without any outside help.

"The virus is incredibly complicated, high-powered and complex," is the opinion of one user. "The industry probably doesn't know how many viruses there are. It's a bit like the early days of AIDS. It takes many different forms and can affect any communication at all – modems, disk transfer, network – with some nice refinements.

"You can't write a cure-all. Any fix is relevant only to that particular virus, and the combinations are endless. It's possible to write something that will run once and then never again, so it's impossible to trace. Computers are risky machines, and it's a high risk to run a whole business on one computer. There's too little knowledge in the industry."

One thing seems certain. The computer virus – or cancer, call it what you like – is not going to go away if we ignore it. It's going to cause a lot of people a lot of pain and trouble in the near future, and unless it's quickly brought under control it threatens the entire industry. ■

Bulletin Board List

Courtesy of RUBoard and Kris Spurling.

DO NOT ring outside the hours given for each board please.

AUCKLAND (09)

Compuboard (RBBS)	Ph. 885-158 Ph. 885-159	Sysops – John Blaikie, Darrin Clement 24 Hours cost $30 Bauds – up to 2400!! TWO USERS ON AT ONCE
Access	Ph. 814-9496	Sysop – Douglas Henderson Baud –300 24 Hours cost – see Chat!!!
ABUG	Ph. 534-8414	Sysop – Paull White 24 Hours cost – see Chat!!! Bauds – 300, 1200/75 (only 7,e,1)
Chat	Ph. 817-6482	Sysop – Hamish Steiner Baud – 300 24 Hours cost – all (3) cost $20 to join
Pacific Computers	Ph. 578-703	Sysop – Pacific Computers 24 Hours cost – Free Bauds – 2400,1200,1200/75,300
NZMicro Opus	Ph. 498-315	Sysops – Terry Bowden, Selwyn Arrow 24 Hours cost– NZMCS membership Bauds – 300,1200/75, 1200/1200, 2400/2400
Bullet	Ph. 788-873	Sysop – David Morland Baud – 300 5-30pm-8.00am All weekend
RUBoard (SJ)	Ph. 410-3417	Sysman – Kirs Spurling. NOTE!: 5.00pm-8.00am Mon-Fri All Weekend Bauds – 300-2400, 4800-19200 on request

WELLINGTON (04)

Love Over Gold (Maidstone Computer Village) Ph. 278-595
6.00 pm – 9.00 am Mon-Thu
9.30 pm – 9.00am Friday night
12.30 pm Sat – 9.00 am Monday Free.
300, 1200/75, 75/1200
Sysops: Jeremy Scrivener and Stephen Jones

Murray's Computer Village Ph. 697-432
5.45 pm – 9.00 am Mon-Fri
9.00 pm – 9.00 am Thursday
1.00 pm Sat – 9.00 am Monday
300, 1200/75, 75/1200
The first BBS in the WGTN area. No charge.
Sysop: Muzz Trickett

Wellington Microcomputing Society Ph. 836-592
24 hours $30 to join
300,, 1200/75, 75/1200
Sysop: Peter Cowley

Dumboard Ph. 277-601
5.00 pm – 9.00 am Mon-Fri
300, 1200/75, 75/1200
All weekend. No charge.
Modified version of Overboard. Sysop: Kevin Sartorelli.

Freeboard Ph. 849-715
6.00 pm – 7.00 am 7 days
300
Overboard model software. Sysop: Peter Tse.

The Alamo Ph. 770-129
24 hours Sysop: Axe Man
300, 1200/75

Connextions Ph. 268-036
After Hours
300

CHRISTCHURCH (03)

791-917	PolyVox 300, 1200	9pm-7.30am weekdays pm Sat-7.30am Mon.
65-072	Quantumnet 300, 1200	5.30pm-8.00am weekdays 1.30pm Sat-8.00am Mon.
69-602	Quantumnet 300, 1200	24 hrs
61-399	Commodore & 300 Computers	5.30pm-8.00am weekdays 1.30pm Sat-8.00am Mon.
843-634	CCUG BBS 300	5.30pm-8.00am weekdays 24 hrs over weekends
890-949 (RBBS-PC)	Greg Brackley's BBS 300 Sysop: Greg Brackley	10pm-7am & 8am-5pm Monday to Friday 10pm-9am Weekends

OTHERS

Kiwifruit Coast Ph. (075) 81-333 (Tauranga)
BBS
Sysop – Dennis Brown, Sel Orme+
NOTE!: 5.30pm-7.30am

Kapicom Ph. (058) 36363 (Paraparaumu)
8.00pm-10.00am

Harry the Sysop will answer and put on on-line. DO NOT phone in the middle of the night, or you will get an irate Sysop! A new system run on a C64. Cost: Free.

C.C.I.G. Ph. (024) 269-022 (Dunedin)
Sysop – not known
Hours – not known
Bauds – 300

Napier Computer Village BBS (070) 57510 Napier
5.30pm-8.30am Monday to Friday
6.15pm-8.30am Friday to Saturday
12.30pm Saturday-8.30 Monday
300:300 A new BBs run on a c10

Glossary *Part I*

Acoustic coupler: a mechanical device connecting RS232 port to a telephone handpiece.
Algorithm: a list of instructions for carrying out some process step by step.
Analog: a system of conveying information by using a continuous but varying signal. See Digital.
ANSI: American National Standards Institute.
Applications program: a program written to carry out a specific job, for example an accounting or word processing program.
Architecture: the internal design, or description of the manner in which the components of a computer system interact.
Array: a data type found in high-level languages, stored in a contiguous block of memory and accessed by the array name and an index, making it easier to process groups of data in many situations.
Artificial intelligence: the ability of a computer to reason or learn.
ASCII: American Standard Code for Information Interchange. An 8-bit code.
Backup: an extra copy of a program or data, kept for use if the original copy is corrupted, lost or damaged.
BASIC: Beginner's All-purpose Symbolic Instruction Code. The most widely used, and easiest to learn, high-level programming language for microcomputers.
Baud: speed of transferring data, measured in bits per second and named after Baudot.
Benchmark: a fixed point of reference from which comparisons can be made.
Bidirectional: a printer that prints when moving left as well as when moving right.
Binary code: a number base used by all digital computers, using 1s and 0s which are represented in the computer by electrical pulses, either on or off.
Bit: binary digit, the smallest piece of information handled by a computer, most of which control 8, 16 or 32 bits at a time.
Boot: to load the operating system into the computer, usually from disk and one of the first steps in preparing the computer for use. Short for bootstrap.
Buffer: an area of memory used for temporary storage while transferring data to or from a peripheral such as a printer or disk drive, speeding up the processing.
Bug: an error in software or hardware.
Bus: a path on which several parts of a computer may be connected so that signals can be passed between them.
Byte: eight bits. A character is usually represented in a computer by a series of eight bits, handled as one unit.
CAD: computer aided draughting, an increasingly common method of producing working drawings. Once restricted to mainframes, it is now often found in the PC environment.
CAM:computer aided manufacturing, using a computer to control machines.
Card: in hardware, a circuit board.
CCITT: an abbreviation for International Telegraph and Telephone Consulting Committee which, being French-based, has its initials in a different order. A standard maker.
Chip: an integrated circuit on a single crystal of semi-conductor material, far smaller than fingernail size.
CMOS: transistor technology, when a pair of transistors of opposite type are used together. Means low power use.
Cobol:common business oriented language, developed for mainframe business and data processing applications.
Coprocessor: an extra microprocessor working in tandem with the main microprocessor and used for specialised functions, eg floating-point arithmetic calculations.
cpi: characters per inch, a common way of describing character density in printout.
CP/M: control program for microprocessors, an operating system for 8-bit Z80 based machines, with a very large software base. See also DOS.
cps: characters per second, the usual way of describing speed in printers.
CPU: central processing unit, the main unit of a computer.
Crash: a term describing the inability of a system to proceed or function, usually caused bya bug or hardware fault.
CRT: cathode ray tube; see Monitor.
Cursor: an indicator on a video marking where the next character will be shown or where a change can next be made. Also a person whose system has just crashed.
Daisywheel printer: a printer which uses a serrated plastic disc having the characters formed on the outer ends of its 'petals', which is rotated into the desired position and the print formed by impact. Results in high-quality printout similar to typing.
Data: all information manipulated by a computer.
Database: an organised collection of related information which can be accessed in different ways.
DBMS: database management system, a system for managing a database.
DC: direct coupling (telecomputing); or direct current.
Debug: to test a program and correct its bugs or errors. Ideally, a program has been thoroughly debugged before operational running and should never show a fault; the real world bears no resemblance to the ideal situation.
Digital: a system of conveying information by the existence or absence of a signal, using binary (on/off) method. Used by computer equipment and the opposite of Analog.
Disk: a spinning flat, circular magnetic surface on which the computer can store and retrieve data and programs, usually of a diameter of 3, 3.5 or 5.25 inches. See also Floppy and Hard Disk. American spelling of disk adopted universally except by one or two tenacious British computer manufacturers.
Disk drive: the mechanical device which rotates the disk and positions the read/write head so information can be retrieved or sent to the disk by the computer.
Diskette: another name for 3.5 or 5.25 floppy disk.
DOS: disk operating system, a set of programs to operate and control one or more disk drives, as in CP/M and MS-DOS.
Dot graphics: images formed by individual screen pixels being turned on or off.
Dot matrix: a type of print head made up of a matrix of pins, typically 9 or 24, which are pushed out electromagnetically to strike the ribbon to paper and form the character.
Dump: a popular term for sending data from the computer to a mass storage device such as disk or tape.
Emulation: the manner in which one piece of equipment works in a way similar to another, although not as an exact copy.
EPROM: erasable, user-programmable, read-only memory.
Ergonomics: the study of the relationship between workers and their environment, such as comfort of computer furniture combined with safety and functionality.
File: a continuous collection of characters (or bytes) that the user considers a unit, eg an accounts receivable file, stored on tape or disk for further use.
Floppy: thin plastic flexible disk inside a protective sleeve, used for storing information.
Format: the arrangement of a computer's output, or the writing of address codes on a blank disk.
Forth: a compact language, in which the programmer extends the language as he programs.
Fortran: Formula Translation, a language for scientific and mathematical use, written in a combination of English statements and algebraic formulae.
Friction feed: a type of paper-feeding mechanism for printers, in which the paper is gripped between two friction rollers as on a typewriter. See Tractor Feed.
Glossary: an alphabetical list of terms peculiar to a field of knowledge, with definitions or explanations.
Hard disk: a metal disk, usually mounted permanently within its drive and capable of storing much more information than a floppy. Also more expensive and more sensitive to environmental variations.
Hardware: the computer itself and peripheral machines for storing, reading in and printing out information.
Hex: the abbreviation for hexadecimal notation, a base-16 numbering system particularly suited to computers.
High-level language: any English-like language, such as Basic, that provides easier use for untrained programmers.
IEEE: Institute of Electrical and Electronics Engineers, which defines standards.
Impact printer: any printer which makes an impression by striking the paper through an inked ribbon.
Ink-jet printer: a printer which forms images by spraying droplets of ink on to the paper, each droplet being electrically charged and deflected into the required position by magnetic plates.
Input: any kind of information entered into a computer.
Interactive: refers to the ability of a computer to act in a conversational manner with its operator.
Interface: any hardware/software system that links a computer with any other device. Also rumoured to refer to a publication.
I/O: input/output, a device or port used for transferring information in and out of the computer.
Jargon: specialised language characterised by pretentious vocabulary or meaning.
Justified: printing is justified when the lines are flush on both the left and right sides.
K: stands for kilo (thousand), although one kilobyte (kb) is actually 1024 bytes, 5kb being 5120 bytes (5 x 1024).
LAN: local-area network, a connection system usually contained within one building or cluster of buildings.

OPIX (Opus Information eXchange) is a sample of the interactive Technical Forum currently running on the Auckland-based NZ MICRO OPUS Bulletin Board System, telephone (09) 498-315, 300 to 2400 bps, 24 hours.

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TO: ALL
FROM: RV
SUBJECT: ANSI & MSDOS

What are the codes that an ANSI terminal uses to change colours, and highlight etc (does it in fact do that?), if there are loads and loads of them, could someone upload them? Does MSDOS have a inbuilt routine that prints to the screen, and do most programs use it? Can it be changed so as to echo to the serial port and to the screen? (I don't need to know how to do it, just that it might be possible without an exceptional amount of effort).

TO: RV
FROM: BS
SUBJECT: ANSI & MSDOS

The codes for an ANSI terminal are outlined in the MSDOS manual There are quite a number of escape sequences used but most of them start with ESC [I think. Some of the more common ones are:

```
ESC[2J    ..... Erase Display (clear
                                screen)
ESC[K     ..... Erase to end of line
ESC[*;...*m ... Set graphics
          rendition (including colors)
ESC[*;*H ..... Set cursor position
```

In the above, * represents a number expressed in ASCII digits and ESC represents the escape character (27 decimal, 1B Hex).

The ESC[*;..*m sequence allows the *; to be replaced with as many parameters as you may require. This sequence allows you to set the visual attributes (bright, flash, underline, etc) as well as the foreground and background colors used). I have a full list of the numbers you replace the * with and their meanings if you need it.

Your second question, yes and no. It would be possible to tell the computer that your printer output should go to the serial port and then use Control-P to echo screen output to the printer (now your serial port). The problem with this is that virtually none of the commercial programs write information to the screen in such a way that the Control-P seems to work. The reason for this is that the real fundamental facility that DOS provides to write characters to the screen is verrrrrry slow and most software companies are aware that the consumer wants fast software.

It would be possible to do some fancy stuff in MC by capturing the interupts used for screen output but even that would not guarantee 100% sucess. The only real way to send your screen output to the serial port without regard to the program that's being run is a program (the name of which momentarily escapes me) which is designed to allow the remote control of a PC using a modem.

TO: All
FROM: RV
SUBJECT: ANSI etc

Well we might as well forget that, they look a bit complicated. How about this:
- I have designed a subroutine (in Turbo Basic, but don't say consult the manual cause I already have and I can't find it) that gets a character and adds it to a string, slowly building it up till we have a string 'X' characters long. For delete I use Chr$8, but when I go to use chr$8 on the screen (i.e PRINT CHR$(8)) then I get a block square with a triangle in the middle! Any ideas on what I can do about this or will I have to write to Borland?

TO: RV
FROM: BS
SUBJECT: BackSpace

oooooooooow! Turbo Basic???? 'Yes when you buy Turbo BASIC from Borland, you can create horrible programs at the rate of 6000 lines per minute'

Seriously, it sounds as if the Turbo Basic is not performing any interpretation of the characters you are printing. Turbo Pascal (and most other languages) will treat CHR$(8) as a cursor left instruction.

I suggest that you modify your routine so that you know where the cursor is (ie: reposition the cursor after every character) then you can impliment the backspace function by simply relocating the cursor at the current column -1 using the LOCATE or GotoXY or whatever statement BASIC provides to do this.

Does turbo basic support the ANSI sequences anyway? Unless it does it's own interpretation (which it doesn't seem to) then installing ANSI.SYS will have no effect anyway. Bad Luck.... Do not pass GO, Do not collect $200.

TO: BS
FROM: RV
SUBJECT: BASIC

You really have a thing about BASIC don't you? I am writing in Turbo Basic because it is a language that came with our machine. I don't like TP's 64K restriction because the program I am proceeding to write will take at least 300K. I can't really use your method as it is a bit complicated for what I am doing.
About 2 months ago I had a series of 3 BBS's, each better than the last. First was Tacs I (Tacs standing for THE AMSTRAD COMMUNICATIONS SYSTEM), and as you have guessed it was written on an amstrad (6128). Tacs one and 2 were written in basic, with a bit of z80 machine code to catch the input and output. In 2 I used bankswitching for the forums, and so they were SUPER Fast, for the week that it went it was quite popular, but it kept crashing on me for no reason. The next was called Grimtooths dungeon, and it was written entirely in z80 machine code, all 13K of it. Apart from just being a BBS (on 1 210K disc), I had an adventure on it as well. The adventure concept worked well, and so now that I have a bigger, better machine I want to write a BBS again, with an adventure, which I am planning out. Now, this BBS will be much bigger that the 64K limit that TP implies, and I can NO WAY afford the US$89 for Modula 2 at the momemt, so I am forced to write in BASIC. But I need some M/C routines for dropping DTR on the modem, and detecting carrier, etc. So I can't change the program to do the locate business. Turbo Basic is actually quite good, and is much like Pascal in many ways, but it has NO Global variables, which can be quite a pain. Your offer to teach 8086 m/c will be very handy as then I may be able to write those routines I wanted. The only thing that is really slack about basic is its file handling, which I intend to do a LOT of, but I cant do much about that.

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TO: ALL
FROM: RP
SUBJECT: Targ program

I am using the TARG program from the IBMPC files area on a VMD312 modem at 1200/75. It is the only program that I have seen which supports split speed but an enormous amount of line noise exists on the 75 baud return channel. The 1200 side appears OK though as it downloads at 1200 successfully. This was done from a Tandon AT. When I try running on my XT clone with V20 chip the whole machine locks? up and screams at me. Hardware reset is required. By the way the garbage is not caused by my typing but by the noise.
My Questions to any one who can help:
How can I get my XC to use Targ at 1200/75
Is there anything that will alleviate the noise

Also do you know where Ican get chips to add to the second serial port to my serial card. There are 3 empty chip carriers.

TO: RP
FROM: BS
SUBJECT: Noise

Don't be too quick to blame your problems on line noise. Unfortunately the IBM PC (and clones) are not capable of communicating at a split baud rate (ie: 1200/75). Many software packages fool the IBM into switching baud rates between sending and receiving characters, ie: When you type a character, the RS232 is switched to 75 baud. When that character has been processed, the RS232 is immediately switched back to 1200.

The problem arises when a lot of data is being sent back and forth more or less simultaneously. Either a character will be received while the RS232 is in the 75baud mode or a character will be sent when the RS232 is in the 1200 baud mode. The result is garbage.

You'll probably notice this even more when you come to the end of a line on the screen and OPUS performs a word wrap. Alternately, try holding down a key when entering a message. If you hold down the A key you should get AAAAAAAAAAAAAAAAAAAAA if instead you get a few A's and lots of junk, your baud rates are not being switched fast enough. Another problem that can occur with an AT style of computer is that some software will directly address the chip that controls the RS232 port. Much of this software is designed for the slower IBM PC and when used on an AT to produce split baud rates, it does not wait long enough for the chip to "settle" after receiving a command. As a result, data is received or sent before the chip has properly finished sorting itself out and rubbish is the result.

Many OPUS users are happily using software patches to enable their PC's to run 1200/75 so perhaps they can leave a message explaining how their system is configured and whether they are having any problems.

TO: BS
FROM: RP
SUBJECT: split speed

Thank you for your response.
The noise I get on the line at 1200/75 seems to be line noise as it appears even when I'm not typing. After getting a screen full of data and I'm reading it, odd characters will appear. The 'TD' led on the modem doesn't flash but the 'RD' led does. This implies that the noise originates between my modem and the BBS which then echoes the character back to me.

When I get my Compuspec M1000 back I'll be able to run 1200/75 without split speed on the PC, this should help isolate the problem.

TO: RP
FROM: RV
SUBJECT: TARG

HOW do you get Targ to work on 1200/75 on a MD312? I set Targ up (in S), for 1, and L (1200/75), then press my videotext button is this correct? What should I do?

TO: RV
FROM: RP
SUBJECT: vmd312 + Targ

I use command slk to get 1200/75 split speed using Targ The modem should have the VIDEOTEX button selected. Be patient when BBS answers and keep pressing ENTER key every second or so until the modem or BBS decides to try 1200/75. With 1200/75 on Targ my XT clone locks up and screams but an AT clone is happy. I use 300/300 when not downloading as the noise is a real pain.
When a message goes over a page the 'more' waits for first character but noise seems to get there first so it doesn't wait. At least withh 300 the message can be read as it appears.

++

Spectravideo

Programs galore!

by Nigel Burrell

The Spectravideo columns published in the March to June issues of *Bits & Bytes* were of use to all Spectravideo and MSX Basic programmers. This month, I feel it is time to exercise those published aspects of MSX computing by including a compilation of program listings. These act as an example to the way in which Basic programs should be written and designed.

Feel free to utilise any of these routines within your own programs, taking parts of a routine out where necessary. Don't forget, however, that variable editing may be required – you could be using the same variable name for both the routine and the main program, whereas that particular variable may need to be independently used.

Where changes in the listings have to be made according to the type of Spectravideo computer you have (SVI or MSX), refer to the May issue of the Spectravideo column for command differences.

I give special thanks to David Lambert who kindly supplied some of these program listings. Other listings were of my own design that I'd like to share with other readers. If there are any comments you would like to make regarding this or any of the Spectravideo columns, feel free to write to me c/- *Bits & Bytes*. Please state which brand of computer you own.

LISTING 1:

```
13999 END
14000 REM Input routine version 1.0
14001 REM by D. Lambert. Written in MSX Basic.
14002 ' * Requires: IX, IY, IL, OK
14003 ' *    where: IX = x co-ord of input
14004 ' *           IY = y co-ord of input
14005 ' *           IL = max input length
14006 ' *           OK = char acceptance
14007 ' *       OK: 0 = allow anything
14008 ' *           1 = only text
14009 ' *           2 = only numbers
14010 ' *           3 = only alphanumeric
14011 ' *           4 = only capital text
14012 ' *
14013 ' *  Outputs: A$, B$
14014 ' *    where: A$ = last (CR or ESC)
14015 ' *           B$ = input line
14016 ' *
14019 B$="":LOCATE,,0:ON INTERVAL=30 GOSUB
14100:INTERVAL ON
14020 LOCATE IX,IY:PRINT B$ C$ " ":A$=INKEY$:IF A$=""
THEN 14020 ELSE IF A$=CHR$(13) OR A$=CHR$(27) THEN
INTERVAL OFF:LOCATE IX,IY:PRINT B$ "  ":RETURN ELSE I
F A$=CHR$(8) AND B$<>"" THEN B$=LEFT$(B$,LEN(B$)-
1):GOTO 14020
14030 IF OK=0 THEN IF A$<" " OR A$>"~" THEN 14090
14040 IF OK=1 OR OK=4 THEN IF A$<"A" OR (A$>"Z" AND
A$<"a") OR A$>"z" THEN 14090
14050 IF OK=2 THEN IF (A$<"0" OR A$>"9") AND A$<>"."
THEN 14090
14060 IF OK=3 THEN IF (A$<"0" AND A$<>".") OR (A$>"9"
AND A$<"A") OR (A$>"Z" AND A$<"a") OR A$>"z" THEN
14090
14070 IF OK=4 THEN IF A$>"Z" THEN A$=CHR$(ASC(A$)-32)
14080 IF LEN(B$)<IL THEN B$=B$+A$:GOTO 14020
14090 BEEP:GOTO 14020
14100 REM Cursor flash
14110 IF C$=" " THEN C$="_" ELSE C$=" "
14120 RETURN
```

LISTING 2:

```
5 REM "ILLUSION"
6 ' By Nigel Burrell. Written in SVI Basic.
7 '
10 DEFINT A,C-W
20 C=1:CC=1
30 COLOR 10,1,1:SCREEN 0,0
40 DIM X(183):FOR A=40 TO 80:X(A-40)=SIN((A-
86)/30):NEXT A
50 LOCATE 0,6:INPUT "Enter height of Illusion (1 to
10)";H
60 FOR A=81 TO 110:X(A-40)=SIN((A-86)/30):NEXT A
70 LOCATE 7,8:PRINT "Please wait 10 seconds...";
80 FOR B=111 TO 216 STEP 7:FOR A=B TO B+6:X(A-
40)=SIN((A-86)/30):NEXT A:BEEP:NEXT B
90 SCREEN 1:LINE (0,0)-(255,0),6,BF:FOR B=C TO 180
STEP CC
100 LINE (0,B)-(39,B),9,BF:FOR A=40 TO 222
110 LINE -(A,B+C*H+(X(A-40)*C*H)),9:NEXT A:LINE
(223,B)-(255,B),9:C=C+CC:B=B*1. 15
120 IF C>8 THEN CC=-2
130 IF C=-7 THEN CC=1
140 NEXT B:LINE (0,191)-(255,191),9,BF
150 GOTO 150
```

LISTING 3:

```
5 REM "PIANO PLAYER"
6 '   By Nigel Burrell. Written in SVI Basic.
7 '   N=Note / A=X co-ord of Sprite / B=Y co-ord of
Sprite
8 '
10 DEFINT A-Z:ON STOP GOSUB 500:STOP ON:COLOR
3,1,1:SCREEN 1,3
20 CLICK OFF:GOTO 400
30 SOUND 7,238:SOUND 9,16:SOUND 12,12:SOUND 6,63
40 A$=INKEY$:IF A$="" THEN 40
50 N=0
52 IF A$="," THEN N=119:A=207:B=132
53 IF A$="s" THEN N=225:A=51:B=71
54 IF A$="m" THEN N=126:A=183:B=132
55 IF A$="d" THEN N=201:A=75:B=71
56 IF A$="n" THEN N=142:A=159:B=132
58 IF A$="b" THEN N=159:A=135:B=132
59 IF A$="g" THEN N=169:A=123:B=71
60 IF A$="v" THEN N=179:A=111:B=132
62 IF A$="h" THEN N=150:A=147:B=71
64 IF A$="j" THEN N=134:A=171:B=71
70 IF A$="c" THEN N=189:A=87:B=132
80 IF A$="x" THEN N=213:A=63:B=132
82 IF A$="z" THEN N=239:A=39:B=132
90 IF N=0 THEN SOUND 8,0:GOTO 40
100 PUT SPRITE 0,(A,B),4,0:FOR F=15 TO 3 STEP -1:SOUND
0,N:SOUND 8,F:FOR T=1 TO 12:A$=INKEY$
102 IF A$<>"" THEN 50 ELSE NEXT:IF F=12 THEN PUT
SPRITE 0,(A,B),4,1
105 NEXT:SOUND 8,0:GOTO 40
400 B$=CHR$(255):FOR F=1 TO 14:B$=B$+CHR$(129):NEXT:
B$=B$+CHR$(255):SPRITE$(0)=B$:B$=""
402 A$="PIANO PLAYER":FOR F=1 TO 12:FOR T=F*10+55 TO
F*10+57:LOCATE T,20:PRINT MID$(A$,F,1):NEXT T,F
405 COLOR 10:LINE (0,57)-(255,191),6,BF:LINE (48,59)-
(68,118),1,BF:LINE (72,59)-(92,118),1,BF
408 FOR F=120 TO 170 STEP 24:LINE (F,59)-
(F+20,118),1,BF:NEXT:FOR F=36 TO 210 STEP 24:LINE
(F,120)-(F+20,189),15,BF:NEXT
410 LOCATE 56,76:PRINT "S  D     G  H  J":LOCATE
44,137:PRINT "Z  X  C  V  B  N  M  ,"
415 COLOR 13:LOCATE 59,92:PRINT "#  #     #  #
#"
420 A$="CDEFGABC":FOR F=1 TO 8:FOR T=F*24+20 TO
F*24+21:LOCATE T,152:PRINT MID$ (A$,F,1):LOCATE
T,153:PRINT MID$(A$,F,1):NEXT T,F
421 A$="CD FGA":FOR F=1 TO 6:FOR T=F*24+28 TO
F*24+29:LOCATE T,92:PRINT MID$(A$,F,1):LOCATE
T,93:PRINT MID$(A$,F,1):NEXT T,F
422 FOR F=1 TO 6:FOR T=F*24+28 TO F*24+29:LOCATE
T,92:PRINT MID$(A$,F,1):LOCATE T,93:PRINT
MID$(A$,F,1):NEXT T,F
425 KEY 1,"z,z,z,":KEY 2,"xmxmxm":KEY 3,"cncncn":KEY
4,"vbvbvb":KEY 5,"zszszs": KEY 6,"xdxdxd":KEY
7,"vgvgvg"
427 KEY 8,"bhbhbh":KEY 9,"njnjnj":KEY 10,"hdhdhd"
430 GOTO 30
500 COLOR 15,4,5:SCREEN 0:DEFUSR=89:A=USR(0):BEEP
```

LISTING 4:

```
5 REM MSX Logo symbol routine by D. Lambert
6 ' Written in MSX Basic.
10 SCREEN 2:COLOR 1,5,5:C=1:CLS
20 PSET (105,85)
30 DRAW "S=S;C10R41D15L41U14R40D13L39U12C=C;R3D2L1U2D5
L1NU5D3BD4R2U3R1U3R1D3RLU LR2BD6BR1E3RF3L6E2RFL2BR7H4U
E4D8H3UE2D4HU"
40 DRAW "BLBU5G3LH3R6G2LHR2BL16BUG2D2F3R4FGL6HNR7UR2H2
ND3LU3E2L3D2EBUBL4ND2LND5 LND5LND2BL7BU4"
50 A$=INKEY$
60 IF A$="0" THEN COLOR 15,4,4:C=15:CLS:GOTO 20
70 IF A$="1" THEN COLOR 1,5,5:C=1:CLS:GOTO 20
80 IF A$="," THEN S=4:CLS:GOTO 20
85 IF A$="." THEN S=8:CLS:GOTO 20
90 GOTO 50
```

SINCLAIR

16K Quadratics
by John Stinchcombe

This solves equations by a method not normally taught in schools, that of systematically guided guesses, an approach as valid and speedy as any other. Vivid graphics demonstrate the method.

```
16-K QUADRATICS
BY JOHN STINCHCOMBE


   1 REM  "16-K QUADRATICS"
   2 PRINT "MANUAL OR AUTOMATIC?
"
   5 INPUT M$
   6 CLS
   7 IF M$(1)="M" THEN GOTO 5000
   9 FOR Q=1 TO 200
  10 LET X=INT (RND*-10)
  20 LET COEFF=INT (RND*20+1)
  25 LET TT=-((X*X)+(COEFF*X))
  29 LET APPROX=INT (RND*25+1)
  30 IF TT>=0 AND COEFF<>1 THEN
PRINT "X**2 + ";COEFF;"X + ";TT;
" = 0"
  31 IF TT>=0 AND COEFF=1 THEN P
RINT "X**2 + ";"X + ";TT;" = 0"
  35 IF TT<0 AND COEFF<>1 THEN P
RINT "X**2 + ";COEFF;"X ";TT;" =
 0"
  36 IF TT=0 AND COEFF=1 THEN PR
INT "X**2 + ";"X ";TT;" = 0"
  55 PRINT "
  56 PRINT "A             -(CO+A)
 TT/-(CO+A)"
  57 PRINT "
```

```
  58 GOSUB 3000
2000 FOR K=4 TO 31
2001 PRINT AT K,0;APPROX
2010 LET D=-(COEFF+APPROX)
2011 IF D=0 THEN LET D=1
2016 PRINT AT K,12;-(COEFF+APPRO
X)
2017 IF INT (TT/D)=TT/D THEN LET
 E=(TT/D)
2019 IF X<0 AND X=INT X AND INT
 (TT/D)<>(TT/D) THEN LET E=INT (T
T/D)
2020 IF X>0 AND X=INT X AND INT
 (TT/D)<>(TT/D) THEN LET E=INT (T
T/D)+1
2039 PRINT AT K,23;E
2040 IF E=APPROX AND (E=X OR D=X
) THEN GOTO 2050
2045 LET APPROX=E
2050 NEXT K
2100 GOTO 4000
2101 NEXT Q
2999 STOP
3000 FOR R=2 TO 21
3010 PRINT AT R,10;"
3011 PRINT AT R,20;"
3020 NEXT R
3030 RETURN
4000 PRINT
4001 PRINT "
4006 IF X=APPROX THEN PRINT AT K
+3,0;"X = ";X;"  "
4007 IF X=D AND X<>APPROX THEN P
RINT AT K+3,0;"X = ";E;"  "
4008 IF X=E AND X<>APPROX THEN P
RINT AT K+3,0;"X = ";D;"  "
4010 IF X<>APPROX THEN PRINT "OR
 X = ";X;"  "
4019 IF X=APPROX AND X=D AND X<>
E THEN PRINT "OR X = ";E;"  "
4020 IF X=APPROX AND X=E AND X<>
D THEN PRINT "OR X = ";D;"  "
4021 PRINT "
4030 IF INKEY$="" THEN GOTO 4030
4040 CLS
4050 GOTO 1
5000 PRINT "X = ?"
5001 INPUT X
5002 CLS
5005 PRINT "COEFFICIENT OF SECON
D TERM = ?"
5010 INPUT COEFF
5012 CLS
5015 PRINT "THIRD TERM = ?"
5020 INPUT TT
5022 CLS
5025 PRINT "FIRST APPROXIMATION?
"
5026 INPUT APPROX
5027 CLS
5030 GOTO 30
```

ATARI

Space Mining
by Paul Brydon

The object is to stop the cave ceiling growing down to your base. Should a pillar grow down, the game is lost. Hovering above the cave is an alien ship, which is bombarding you through holes in the ceiling.

You start with three lives, and get an extra life every 500 points.

If you manage to blast away the ceiling, a new, harder level is reached. If you add the following POKEs as a line immediately before line 1000, the game running can be altered. POKE 38802 with from 4 to 8 makes the game progressively easier. POKE 38807 with between 12 and 20, 20 being the easiest. POKE 38857, 1-14, 1 being fastest, POKE 38857, 16-255, 255 being very slow.

```
10 REM *** SPACE MINING ***
20 REM
30 REM -- BY PAUL BRYDON --
40 REM
50 GRAPHICS 0
90 SUM=0
100 FOR A=37659 TO 39023:READ B
110 POKE A,B:SUM=SUM+B
140 NEXT A
150 IF SUM<>160175 THEN ? "ERROR IN DATA":STOP
1000 A=USR(38738)
1010 DATA 160,35,169,130,133,203,169,157,133,204,173,10,210,205,9,156,176
1020 DATA 248,24,109,10,156,170,169,128,145,203,32,64,147,202,208,248,136
1030 DATA 16,222,96,72,165,203,24,105,40,133,203,165,204,105,0,133,204
1040 DATA 104,96,72,56,165,203,233,40,133,203,165,204,233,0,133,204,104
1050 DATA 96,169,0,160,119,153,64,156,153,184,156,136,16,247,169,0,160
1060 DATA 119,153,48,157,153,168,157,153,32,158,153,152,158,153,16,159,153
1070 DATA 136,159,136,16,235,96,160,39,169,8,153,176,159,136,16,250,169
1080 DATA 6,141,216,159,141,217,159,141,254,159,141,255,159,96,160,36,140
1090 DATA 8,156,136,169,4,153,90,157,169,128,153,218,159,136,16,243,96
1100 DATA 160,11,185,214,147,153,78,156,136,16,247,160,13,185,226,147,153
1110 DATA 157,156,136,16,247,160,35,185,240,147,153,226,156,136,16,247,96
1120 DATA 51,48,33,35,37,0,45,41,46,41,46,39,98,121,0,48,97
1130 DATA 117,108,0,34,114,121,100,111,110,51,35,47,50,37,26,16,16
1140 DATA 16,16,0,40,41,39,40,26,16,16,25,24,0,44,41,54,37
1150 DATA 51,26,19,0,35,33,54,37,26,16,17,32,35,148,136,16,2
1160 DATA 160,37,140,0,156,32,50,148,96,172,0,156,169,0,153,48,157
1170 DATA 153,49,157,153,50,157,96,169,1,172,0,156,153,48,157,169,2
1180 DATA 153,49,157,169,3,153,50,157,96,173,5,156,240,1,96,173,132
1190 DATA 2,240,1,96,172,3,156,169,137,133,205,169,159,133,206,177,205
1200 DATA 240,14,201,5,240,9,169,0,145,205,162,3,32,147,149,96,169
1210 DATA 7,145,205,140,6,156,238,5,156,169,14,141,7,156,96,173,5
1220 DATA 156,208,1,96,172,6,156,174,7,156,240,42,165,205,56,233,40
1230 DATA 133,203,165,206,233,0,133,204,177,203,240,38,201,5,240,21,201
1240 DATA 128,240,25,162,2,206,8,156,169,6,153,217,159,32,147,149,169
1250 DATA 0,145,203,169,0,145,205,141,5,156,96,162,3,76,175,148,169
1260 DATA 7,145,203,169,0,145,205,165,203,133,205,165,204,133,206,206,7
1270 DATA 156,96,173,11,156,205,12,156,240,11,238,12,156,169,0,141,1
1280 DATA 156,76,244,148,169,0,141,12,156,169,11,141,1,156,160,35,169
1290 DATA 138,133,203,169,159,133,204,162,15,177,203,201,128,240,14,201,4
1300 DATA 240,10,32,80,147,202,208,240,136,16,227,96,173,10,210,205,1
1310 DATA 156,176,244,32,64,147,177,203,240,9,201,7,240,12,104,104,76
1320 DATA 228,150,169,128,145,203,76,16,149,169,0,145,203,141,5,156,162
1330 DATA 3,32,147,149,76,16,149,173,8,156,240,1,96,32,125,149,169
1340 DATA 0,141,5,156,173,9,156,201,9,240,9,238,9,156,238,9,156
1350 DATA 238,10,156,32,109,147,32,160,147,32,135,147,169,0,141,3,156
1360 DATA 32,152,150,169,37,141,0,156,32,50,148,32,27,147,96,162,1
1370 DATA 189,4,157,201,25,240,4,254,4,157,96,169,16,157,4,157,202
1380 DATA 16,237,96,189,232,156,201,25,240,4,254,232,156,96,169,16,157
1390 DATA 232,156,202,48,247,224,1,208,233,238,13,156,76,147,149,173,13
1400 DATA 156,201,5,240,1,96,169,0,141,13,156,173,253,156,201,25,240
1410 DATA 3,238,253,156,96,173,13,156,205,14,156,208,1,96,173,13,156
1420 DATA 141,14,156,206,15,156,240,1,96,169,2,141,15,156,173,11,156
1430 DATA 201,4,240,6,206,11,156,206,12,156,96,172,0,156,185,89,157
1440 DATA 201,4,240,12,169,85,205,10,210,144,5,169,5,153,89,157,96
1450 DATA 160,37,169,137,133,203,169,159,133,204,162,15,177,203,201,5,240
1460 DATA 10,32,80,147,202,208,244,136,16,231,96,169,0,145,203,32,64

1470 DATA 147,177,203,240,19,201,7,240,12,201,8,240,233,169,1,141,2

1480 DATA 156,76,31,150,206,5,156,169,5,145,203,76,31,150,173,2,156
1490 DATA 208,1,96,172,3,156,169,9,153,176,159,153,178,159,169,10,153
1500 DATA 177,159,169,0,141,2,156,206,253,156,173,253,156,201,16,208,5
1510 DATA 104,104,76,228,150,160,0,140,4,156,32,171,150,32,171,150,32
1520 DATA 137,150,160,0,140,3,156,32,152,150,96,172,3,156,169,8,153
1530 DATA 176,159,153,177,159,153,178,159,96,172,3,156,169,11,153,176,159
1540 DATA 169,12,153,177,159,169,13,153,178,159,96,162,0,234,234,202,208
1550 DATA 251,206,4,156,208,244,96,173,120,2,201,11,240,5,201,7,240
1560 DATA 16,96,172,3,156,240,250,32,137,150,206,3,156,32,152,150,96
1570 DATA 172,3,156,192,37,240,233,32,137,150,238,3,156,32,152,150,96
1580 DATA 160,0,162,0,169,0,141,198,2,141,200,2,169,8,141,197,2
1590 DATA 232,208,240,169,8,141,198,2,141,200,2,169,0,141,197,2,232
1600 DATA 208,240,200,208,221,160,10,185,71,151,153,6,158,136,16,247,160
1610 DATA 0,185,0,148,217,232,156,144,8,200,192,4,208,243,76,51,151
1620 DATA 160,3,185,232,156,153,0,148,136,16,247,169,0,141,4,156,32
1630 DATA 171,150,32,171,150,32,171,150,32,171,150,76,86,151,0,39,33
1640 DATA 45,37,0,47,54,37,50,0,104,32,211,151,32,96,147,169,8
1650 DATA 141,198,2,141,200,2,32,135,147,32,160,147,32,180,147,169,5
1660 DATA 141,9,156,169,1,141,10,156,32,27,147,169,0,141,3,156,141
1670 DATA 5,156,141,197,2,141,13,156,141,2,156,141,14,156,141,12,156
1680 DATA 32,152,150,169,3,141,15,156,169,11,141,11,156,169,37,141,0
1690 DATA 156,32,50,148,32,20,148,169,0,133,77,32,7,150,32,72,150
1700 DATA 32,240,149,32,184,150,32,126,148,32,66,149,32,69,148,32,215
1710 DATA 148,32,176,149,32,200,149,169,15,141,4,156,32,171,150,76,163
1720 DATA 151,169,112,133,203,133,205,169,224,133,204,169,152,133,206,141,244
1730 DATA 2,162,3,160,0,177,203,145,205,200,208,249,230,204,230,206,202
1740 DATA 208,242,177,203,145,205,200,192,144,208,247,96,0,0,0,0,0
1750 DATA 0,0,0,0,1,31,117,123,31,25,48,0,255,255,153,153,255
1760 DATA 255,0,0,129,248,174,222,248,152,12,129,85,129,85,129,85,129
1770 DATA 85,0,36,24,60,60,24,0,0,0,126,66,90,90,66,126,0
1780 DATA 0,0,24,24,24,24,0,0,0,0,0,0,255,0,0,0,0
1790 DATA 0,73,53,213,74,181,74,85,102,173,50,201,182,73,182,0,0
1800 DATA 1,31,253,58,31,0,0,102,255,195,219,255,231,60,0,0,128
1810 DATA 248,191,92,248,0
```

AMSTRAD

Unprotek
by Philip Young

Unprotek will let you list programs saved with the P option (ie protected).

Program 1:

For the 464:

```
  1   '   U N P R O T E K          BY PY, 1987
  2   '
  3   ' This programme removes the protection from
  4   'programmes saved using the 'P' option,   so
  5   'that they can be easily loaded,  listed and
  6   'then resaved without any protection.
  7   '
  8   ' WARNING:  This version is for TAPE ONLY.
  9   '
 10   CALL-17307
 20   FOR i=47856 TO 47861
 30   READ j:POKE i,j XOR 150:NEXT
 40   POKE 47862,PEEK(48247)
 50   POKE 47863,PEEK(48248)
 60   POKE 47864,PEEK(48249)
100 POKE 48247,195
110 POKE 48248,240
120 POKE 48249,186
200 DATA 91,96,44,93,17,95
```

Program 2:

For the CPC664 and CPC128:

```
  1   '   U N P R O T E K          BY PY, 1987
  2   '
  3   ' This programme removes the protection from
  4   'programmes saved using the 'P' option,   so
  5   'that they can be easily loaded,  listed and
  6   'then resaved without any protection.
  7   '
  8   ' WARNING:  This version is for DISC ONLY.
  9   '
 20   FOR i=47856 TO 47868
 30   READ j:POKE i,j XOR 255:NEXT
100 POKE 48247,195
110 POKE 48248,240
120 POKE 48249,186
200 DATA 32,9,69,52,120,54,5,69,248,68,60,179,50
```

EPSON

Super 5 Symbols
by Chris Eve

The utility allows mathematical and scientific symbols to be used on Super 5 or other Epson compatible printers. A few lesser-used characters are redefined as omega (ohms), square root and so on.

Word processors in graphic mode 7 won't screen display the new characters, but will print them. Before loading your wp the program should be chained, with the printer turned on, and the new characters are stored in the printer until it is turned off. A reference sheet will be run off for the user.

Other characters can be redefined on an 8 x 9 grid and put into data statements. In each data line, the second number is the code of the key to be replaced. The listing is shown in BBC Basic.

```
LIST
   10  REM PROGRAM TO SEND DEFINED CHARA
CTERS TO PRINTER.
   20  REM CODES SET UP FOR SUPER 5 EN-P
1090 PRINTER
   30 *FX6,0
   35 REM ONLY IF YOU WANT LINE FEEDS
   40 VDU2:VDU1,27,1,64:VDU3: REM INITIA
LISES PRINTER
   50 PROCdisplay
   60 REPEAT
   70 READ A
   80 IF A = 0 THEN PROCtest ELSE PROCst
ore
   90 UNTIL FALSE
  100 END
  110 DEF PROCdisplay
  120 VDU 2
  130 PRINT"Here are the keyboard charac
ters used and their replacements."
  140 PRINT"These ones:":PRINT
  150PRINT"/","@","#","!","x","*","~","\
","_","'","¦","`"
  160 PRINT"are replaced by:":PRINT
  170 VDU 3
  180 ENDPROC
  190 DEF PROCstore
  195 REM This procedure sends the new d
efined characters to the printer
  200 VDU 2
  210 VDU 1,27,1,89: REM Code to accept
defined characters
  220 FOR count=1 TO 10
  230 READ A
  240 VDU1,A
  250 NEXT count
  260 VDU 3
  270 ENDPROC
  275 REM Now follows the data pack for
each character
  280DATA 1,47,16,0,16,0,84,0,16,0,16
  290DATA 1,64,56,68,146,0,146,0,146,68,
56
  300 DATA 1,&23,2,4,2,1,3,28,224,0,128
  310 DATA 1,&7C,0,34,0,34,216,34,0,34,0
  320 DATA 1,&7E,64,160,0,160,64,0,0,0,0
  330 DATA 1,&78,34,0,34,20,8,20,34,0,34
  340 DATA 1,&2A,0,0,68,40,16,40,68,0,0
  350 DATA 1,&5C,72,128,24,128,40,128,72
,0,0
  360 DATA 1,&5F,18,40,70,0,64,0,70,40,1
8
  370 DATA 1,&27,80,136,32,136,32,80,0,0
,0
  380 DATA 1,&21,8,20,42,0,42,0,34,0,0
  390 DATA 1,&60,16,32,30,32,0,32,30,32,
64
  400 DATA 0 REM Defines end of data
  410 DEF PROCtest
  415 REM Prints out new characters
  420 VDU 2
  430 PRINT"/","@","#","!","x","*","~","
\","_","'","¦","`"
  440 PRINT
  450 PRINT"Characters now replaced unti
l printer reset by appropriate code."
  460 VDU 3
  470 END
  480 ENDPROC
  490 END
>WIDTH 80
>RUN

  Here are the keyboard characters used and their replacements.
  These ones:

  /        @        #        !        x        *        ~        \
  _        '        ¦        `
  are replaced by:

  ÷        Θ        √        ±        x        ×        •        ²
  Ω        °        ¢        ¶

  Characters now replaced until printer reset by appropriate code.
```

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SINCLAIR

1K Third Degree
by John Stinchcombe

The range of possible solutions to cubic equations is determined by lines 40, 50 and 60. The larger the number of solutions, the longer the computer will take to find them all.

```
1K THIRD DEGREE

  10 PRINT "2ND TERM COEF?"
  11 INPUT S
  20 PRINT "3RD TERM COEF?"
  21 INPUT T
  30 PRINT "4TH TERM?"
  31 INPUT F
  32 PAUSE 50
  34 PRINT "X**3 + ";S;"X**2 + "
;T;"X+";F;"=0"
  35 PRINT "PRESS ANY KEY TO CON
TINUE."
  37 IF INKEY$="" THEN GOTO 37
  38 CLS
  39 PRINT AT 16,8;"PLEASE WAIT.
"
  40 FOR A=1 TO 12
  50 FOR B=1 TO 12
  60 FOR C=1 TO 12
  65 IF A*B*C<>F THEN GOTO 200
  70 IF (A+B+C)<>S THEN GOTO 200
  80 IF (A*B)+(A*C)+(B*C)<>T THE
N GOTO 200
  89 CLS
  90 PRINT AT 4,0;"X=";-A;" OR X
=";-B;" OR X=";-C
  99 SLOW
 100 STOP
 200 NEXT C
 210 NEXT B
 220 NEXT A
```

SHARP

Binary-Decimal Conversion
by Paul Roos

This program can be entered into most Sharp pocket computers with little or no modification. If binary is input, it must be 8 bits long. To execute it, type DEF A.

```
PROGRAM INFORMATION:

PROGRAM: 383 BYTES
VARIABLES: 30 BYTES
TOTAL: 413 BYTES
FREE: 841 BYTES

ENTER PROGRAM AS BELOW
AND TYPE
          DEF A
TO EXECUTE IT.


 10:"A":WAIT :CLEAR :
    USING :PRINT "DEC<=>
    BIN CONV.":RESTORE 1
    10:DIM B$(0)*8:GOSUB
    100:USING "####"
 20:B$(0)="":N=0:INPUT "
    ENTER DEC / BIN",B$(
    0):IF LEN B$(0)=8
    GOTO 70
 30:N=VAL B$(0):B$(0)=""
    :NE=N:IF N>255 GOTO
    20
 40:FOR X=1 TO 8:IF NE-A
    (X))=0 LET B$(0)=B$(
    0)+"1":NE=NE-A(X):
    GOTO 60
 50:B$(0)=B$(0)+"0"
 60:NEXT X:GOTO 80
 70:FOR X=1 TO 8:N=N+A(X
    )*VAL MID$ (B$(0),X,
    1):NEXT X
 80:PRINT N;" = ";B$(0):
    P$="":INPUT "PRINT O
    UT?",P$:IF P$="Y"
    LPRINT N;" = ";B$(0)
 90:GOTO 20
100:FOR X=1 TO 8:READ A(
    X):NEXT X:RETURN
110:DATA 128,64,32,16,8,
    4,2,1
```

Where do we go from here?

by David Cass

This is the first in what will be a new series of columns, in which we'll look at and discuss some of the ways in which you, a beginner or inexperienced user, can learn to use your micro to best advantage in the home and family environment. The idea will be to bring to your notice hints and thoughts to help you progress from the raw beginner stage until you can both really enjoy using it and feel that you're making good use of it.

Readers who may get most benefit from the column will probably be those who are early in the learning curve in their computer use, perhaps recent purchasers of a micro for home use, or those feeling that they should make more use of one already in the house. Whoever you are, welcome to the column, and we'd like your feedback!

What's ahead over the next few months? You may well wonder this, as you survey all the bits and pieces of the computer on the living-room table. You have it set up there and you're about to settle in for a spell of using it. Maybe you're one of the lucky ones with a monitor for use just with the computer, or a reserved TV set, or perhaps you have to snatch time with the family TV when no-one else is using it.

What can you do to get yourself organised and using whatever setup you have to best advantage? One of the better ways to start is to get the physical environment sorted out, trying to organise things so that you can set things up and get working quickly, and then you can start to make good use of your time. We can examine these questions in detail later on, but in the meantime make those working conditions as good as you can.

Once you're organised, what to do with your computer? You've probably started by running the tapes or disks that came with it; you might even have read, or tried to read, the manual, and painfully typed in some of the programs in it; but now you want something a little more rewarding or stimulating.

Quite possibly this has not got you off the ground at all! (It happens to more paople than you might think.) It may pay here to think about what you've enjoyed most about your progress so far, whether the sense of satisfaction from constructing a type-in program and watching it run, or using a very basic word processor, or spreadsheet, or the enjoyment from playing games.

This may give you the clue as to how to move on, as it is vital to get enjoyment from your computer use. Only then will you want to keep using it, and thus get the hands-on time which will give you the competence and confidence that comes from familiarity.

If you enjoyed typing a program in and seeing it run, you may become one of the lucky ones who could end up learning programming skills. It has been estimated by computer guru Adam Osborne that only about 5 per cent of the home computers sold are ever used for actual programming. He made the comment some years ago and the percentage may now be rather higher, but there are still not many doing their own programming.

Your way onward is probably to explore the different avenues of acquiring more programs to enter or modify, from books available at your local library, or from user magazines from a newsagent or computer store, or from the NZ Micro Club library, or possibly at your local public library again. After more type-ins and modifications the next stage will be to work through books on programming, once again through the library or by purchase, and learn to do it yourself. A later column will explore this sort of avenue, where to go, and what best to buy or borrow.

If you are one of those who enjoyed using a more utilitarian program, your way forward may be to get hold of more advanced programs and run them, and then more advanced programs and run them, and then... but this can get expensive! It is also counter-productive, as you'll spend so long learning or trying to learn that you achieve little, and don't ever get beyond beginner stage. You may also hit some pretty indifferent programs on the way, especially if you buy from advertisements without seeing a review, or talking with someone who's used the program in question.

There are perhaps some other ways to beat this problem, such as to try before you buy, or to seek help from those who've gone before, by talking with dealers or experts from clubs or user groups. Or you could even hire through a software hire concern, if you don't want to buy.

Another way that some have found useful in the early stages is to use an integrated program that combines functions such as word processing, database and spreadsheet, and allows transfer of data among these separate functions (very important). These are sometimes easier to learn. Talking with an experienced user can help, to get the right practical hints to start you off again, but if you catch the wrong sort of experienced user, you may wish you hadn't asked!

Should you show signs of being a games freak, you too will want to tread the path of more and better as noted above. The same pitfalls apply, but so do the same remedies, of asking for advice or trying in some way before you buy. The ads in computer magazines (and sometimes reviews) are sometimes a big let-down, when you've forked out a ton of money and got a lemon. Believe me, it happens, just as it does for the more serious programs. Once again, do try to contact other users, and get some reactions.

One final fate may await you. You may turn into an equipment freak! For the sake of your bank balance, put it off as long as you can, and first learn to use what you've got to good advantage. You may learn some lessons on the way, even if only what not to buy next time. The pressure from magazines, dealers, user groups and the like is always to upgrade... there is always another program, another accessory, another peripheral, which will answer your problems, but 'tain't necessarily so. There are ways to guard against this awful fate, and ways to go along with it with least pain, and we can look at these too in a later column.

So what is ahead in future columns? We will discuss, not necessarily in this order, topics such as getting organised, who to turn to for verbal advice, getting help from the written word, different ways to try before you buy, guides to software, the new hardware jungle, or the used equipment road that some tread with good results.

Let's emphasise at this stage that we're looking at the home computer beginning stages, and are not concerned with big-buck or high-tech business use. What we'll look at will rather be the world of the eight-bit computer: Commodore, Amstrad, Electron/BBC, Spectrum or Apple; no longer glamour computers, as the 16- and 32-bit generation takes over, but the time spent learning your way round them will never be wasted even if you move on to bigger and better as the years pass.

The words that appear each time will *have come from my five years of learn*ing to use, first, my Spectrum (16k up to 48k), and then on to Amstrad 464, now expanded to 6128. I've had time on Commodore 64, rather less on Apple IIe, and my first frustrating hours were on an early TRS80. The learning continues each day, but more important than my experience is what one learns from talking with others – not just computer freaks but new users, and this column will reflect their comments and advice as well as mine. ■

Wargames UK 1987

Report by Owen and Audrey Bishop

There have been major developments in computer wargaming during 1987, with promise of further excitement all through 1988. The US-based firm Activision has included several wargames in its extensive release list.

We have just tried one of their latest games, High Frontier, a strategy game based on SDI ('Star Wars' to the uninitiated!). You are in charge of developing an effective SDI for the US, while under increasing threat of Soviet attack. With any luck everything happens in outer space, and terrestrial targets are saved from destruction. A good game for those who like managing resources and exercising judgement at the strategic level. There's an optional (thank goodness!) arcade-type sequence for those who prefer to think with their trigger fingers.

Another strategy game released for Spectrum and Amstrad earlier last year is Annals of Rome, from PSS. The C64 version has just arrived. The aim is to steer the roman Empire through a series of attacks from Gauls, Vandals, Numidians, Phyrgians, Visigoths and numerous other hostile hordes who threat to engulf you (often with devasting success) from all sides. Amidst all this furious activity you have to maintain stability at home and to prevent the Empire's legendary decline and fall. A strategy game of depth, with historical accuracy.

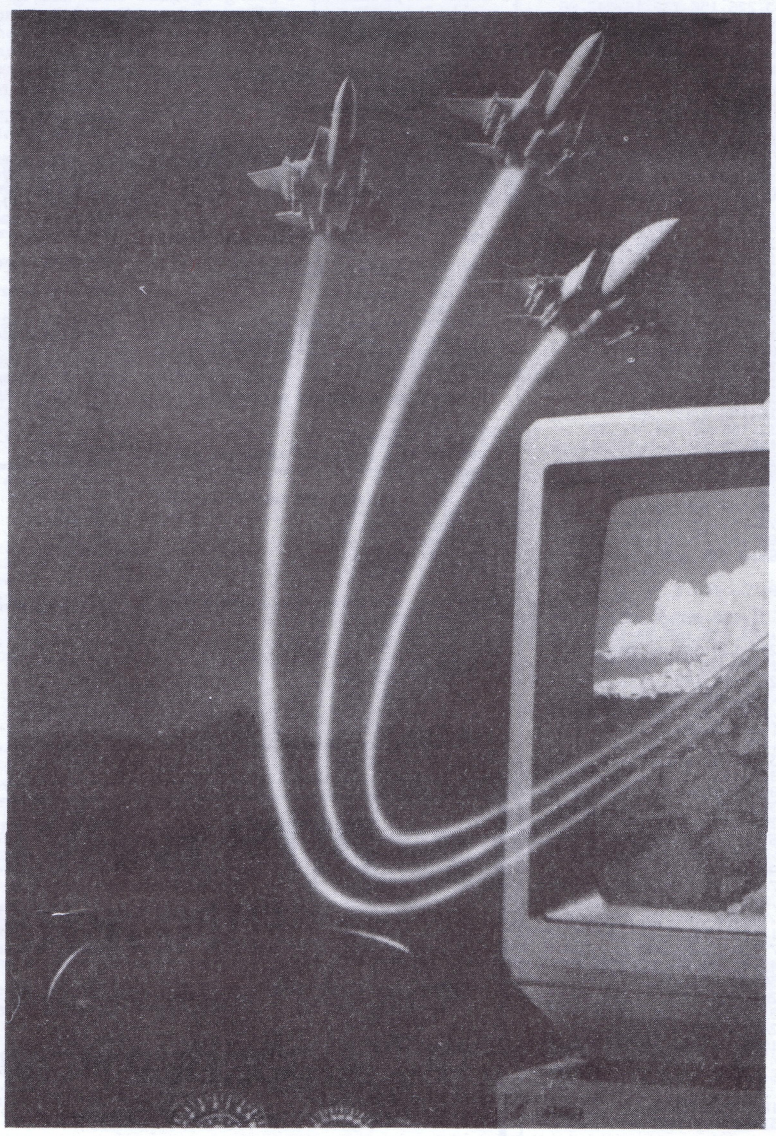
Big things have been happening to PSS. Formerly a small mail-order company, it has now gained support and strength by joining with the massive Mirrorsoft. PSS are wargame specialists, now considered to be Europe's leading publisher of wargames, and all releases are published simultaneously in major European languages.

The company has recently signed a distribution agreement for the Australian SSG range of wargames. This summer (NZ's winter), it produced two compilation tapes of some of its earlier successes. Conflicts 1 included Battle of Britain, Falklands '82 and Theatre Europe; three good tactical games and excellent *value for money for C64, Spectrum and* Amstrad owners (the Amstrad tape has Tobruk instead of Falklands). New Zealanders may be more interested in Conflicts 2, which includes Battle for Midway and Iwo Jima.

Guadalcanal, another of Activision's latest games for the Amstrad, C64 and Spectrum, is another that covers the Pacific Theatre. We are looking forward to receiving our review copy. Being written by Ian Bird, co-author of the best-selling Theatre Europe, this promises to be an enthralling game. You can command either the US or the Japanese forces and "possibly change the course of history".

PSS is not looking backward. Owners of 16-bit machines can look forward to seeing many of the new games appearing in versions for the Amiga, Atari ST and IBM-PC, so keep your ears to the ground. These versions will make full use of the machine's special capabilities. Latest releases from PSS include Pegasus Bridge (first D-Day landings) and Sorceror Lord (fantasy wargame), two tactical games for Spectrum and Amstrad.

The C64 is the most favoured machine with Okinawa, Tobruk, Pegasus Bridge, Power Struggle (super-power politics – guess who's struggling!), Sorceror Lord, Battlefield Germany (WW3 nuclear simulation – Spectrum version favourably reviewed a few months ago) and Firezone (ground combat in the 21st century, also on Amstrad). And many more to come!

Last year's wargames software showed increasing ingenuity in the game design, the control routines, the graphics, and the algorithms that drive the computer opponent.

We look forward to 1988's. ■